Installation and Operation Manual

VCP-010-06(-07)-x

Multi-Standard Video Cassette Player

Document # 540236

VCP-010-06-x

VCP-010-07-x

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Table of Illustrations

Section #	Subsection #	Description	Page #
I	6.2	Typical Application	6-7
II	9.1	Reference Drawings (VCP-010-06-x)	15-16
II	9.2	Reference Drawings (VCP-010-07-x)	17-18
III	1.0	Front Panel	20

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Table of Contents

Section		Description	Page
I		**GENERAL INFORMATION……..**	**4**
	1.0	Introduction……..	4
	2.0	Purpose of the Equipment……	4
	3.0	Operational Features……..	4
	4.0	Optional Equipment…….	5
	5.0	Technical Specifications……	5
	6.0	Application……	5
II		**INSTALLATION…….**	**8**
	1.0	Prior to Installation……..	8
	2.0	Unpacking and Inspection……..	8
	3.0	*Cautions & Warnings*……...	9
	4.0	Wiring Requirements……..	10
	5.0	Physical Characteristics…….	11
	6.0	Electrical Characteristics……	11
	7.0	Post-Installation Test……..	13
	8.0	Troubleshooting……...	13
	9.0	Reference Drawings……	15
III		**OPERATION……**	**19**
	1.0	General Information……	19
	2.0	To Load a Videocassette Tape into Tape Slot……..	20
	3.0	Front Panel Button Functions……	21

VCP-010-06(-07)-x

Multi-Standard Video Cassette Player

VCP-010-06-x

VCP-010-07-x

VCP-010-06(-07)-x

Multi-Standard Video Cassette Player

SECTION I – GENERAL INFORMATION

1.0 Introduction

This manual contains information for the proper installation and operation of Audio International's (AI) Multi-Standard Video Cassette Player, VCP-010-06(-07)-x. The "-x" in the suffix designates the type of connector utilized; "-1" = Positronic and "-2" = D-Subminiature. Also included are mechanical and electrical characteristics of the unit.

2.0 Purpose of the Equipment

Audio International's VCP-010-06(-07)-x is a high quality, multi-standard video cassette player. This unit plays versions of NTSC and PAL video cassettes. It does not support SECAM or MESECAM formats. Video output format is selectable between NTSC and PAL mode.

3.0 Operational Features

- Operates directly from +28 VDC
- Compact, lightweight package
- Front panel controls w/green backlighting
- Optional infrared remote control capability
- Video output level of 1 $V_{(p-p)}$ into 75 Ω
- Audio output level of 2 V_{RMS} adjustable into not less than 600 Ω
- Video playback formats: NTSC and PAL
- Standard plating options for front bezel
- Easy to mount and connect

4.0 Optional Equipment

AI source equipment can be optionally controlled by infrared remote (AI-RCx-17xxxx). Playback options with this remote include visual search, pause, play, stop, fast forward, rewind, eject, and format.

Contact your AI representative for details.

5.0 Technical Specifications

Physical Specifications-VCP-010-06-x	
Housing	Aluminum
Weight	8.80 lb / 3.99 kg
Dimensions (l x w x h)	12.12" x 10.35" x 4.25" 30.78 cm x 26.9 cm x 10.8 cm

Physical Specifications-VCP-010-07-x	
Housing	Aluminum
Weight	8.75 lb / 3.97 kg
Dimensions (l x w x h)	13.6" x 10.4" x 4.3" 34.5 cm x 26.4 cm x 11 cm

6.0 Application

6.1 Introduction

6.1.1 The VCP-010-06(-07)-x is a high quality, multi-standard video cassette player. This unit plays versions of NTSC and PAL videocassettes. The video output format is selectable between NTSC and PAL mode.

6.1.2 The VCP-010-06(-07)-x will accept a +5 VDC infrared digital input and AI's proprietary RS-485 two-wire serial data bus input.

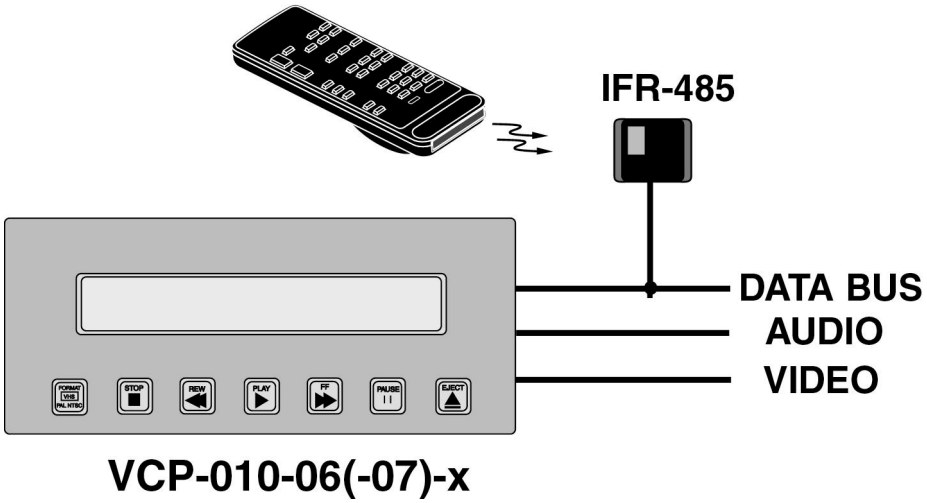
6.1.3 The video output connector (BNC1) allows for connection of the VCP to the video source selector. Since the video source does not have audio switching, it will provide video output only. Separate audio outputs are provided.

6.1.4 If power is interrupted (>250 msec) while a cassette is in the video player, the player will shut down and the cassette must be ejected and reinserted into the VCP to restart playback.

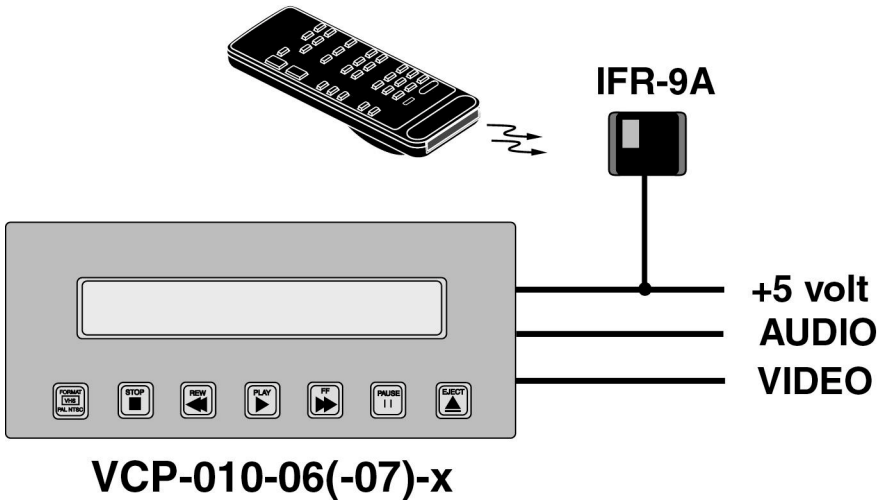
6.1.5 The VCP powers up to an output of NTSC. Press the FORMAT button on the front of the player to change the output standard between NTSC and PAL.

6.2 Typical Application

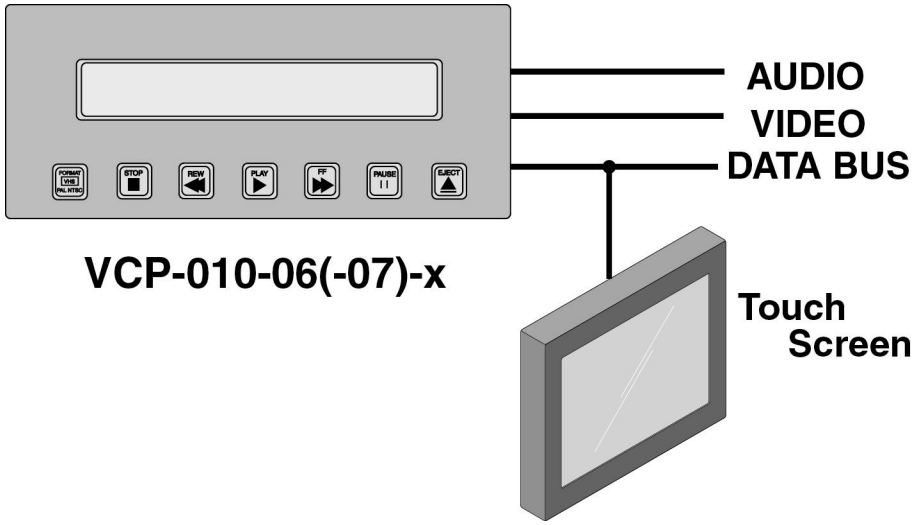
6.2.1 This system is fully compatible with Audio International's proprietary RS-485 digital data bus system. It can be configured for IR remote control utilizing AI's remote control unit AI-RCx-17xxxx and IFR-485.



6.2.2 The unit can also be configured for IR remote control utilizing AI's remote control unit AI-RCx-17xxxx and IFR-9A. This following configuration utilizes a +5 VDC digital logic level for activation of infrared commands. Connection to multiple IFR-9A units utilizing the +5 VDC digital logic level connection requires an external Schottkey diode at each IFR-9A unit. This will prevent signal loading. Contact AI for details.



6.2.3 The unit can also be configured for Touch Screen or remote panel control (i.e. entertainment control panels). The panels are on AI's proprietary RS-485 digital data bus system and configured to control the operational features of the VCP-010-06(-07)-x.



SECTION II - INSTALLATION

1.0 Prior to Installation

1.1 During the design and layout of the aircraft cabin, careful consideration of the location of this and all other audio/visual modules is necessary. Some of the items to be considered include:

- Space
- Proximity to other devices (i.e. source equipment)
- Available power supply
- Length of cable runs
- Environmental conditions (temperature, humidity, etc.)
- Location of other aircraft systems (i.e. oxygen delivery)
- Access for service repair (if applicable)
- Convenience for user interface

1.2 The VCP-010-06(-07)-x shall be installed to conform to the standards designated by the customer, installing agency, and existing conditions as to the unit location and type of installation.

1.3 Mounting screws are required to secure the unit. Refer to Section II, 9.0 for mounting hole diameters and configurations.

1.4 All headphone amplifiers and line level amplifiers shall be located no more than three (3) feet away from the VCP-010-06(-07)-x. Long low-level audio runs may introduce noise into the audio signal.

1.5 The VCP-010-06(-07)-x must be mounted in a horizontal position (not on its side or back).

1.6 Temperature consideration of the installation area is important. Operating temperature range for the unit shall be between -15° and +55° Celsius.

1.7 Avoid installing the unit where it will be exposed to excessive heat, moisture, splashing liquids, dusty areas, or direct sunlight.

2.0 Unpacking and Inspection

2.1 Carefully open the packaging and remove the VCP-010-06(-07)-x. Verify that all components have been included in the package per the packing list. Inspect the unit for shipping damage.

2.2 If damage has occurred during shipping, a claim should be filed with Audio International WITHIN 24 hours and a **Return Request Authorization Number** shall be obtained from AI. Refer to the front cover of this manual for address and telephone number of Audio International, Inc. Repackage the unit in its original packaging materials and return it to AI following instructions given by the AI representative. If no return is necessary, retain the packing list and the packing materials for storage.

3.0 *Cautions & Warnings*

3.1 It is important to do a pin-to-pin power and ground check on all connectors. Ensure power and ground are applied only where specified. Damage may result if power or ground is applied to the wrong points.

3.2 **DO NOT** connect or disconnect the unit while power is applied.

3.3 **DO NOT** remove any factory-installed screws. Damage to the unit may result and void any warranties.

3.4 **DO NOT** attempt to open the case. Refer servicing to qualified personnel.

3.5 **DO NOT** place foreign objects into openings. Contact with foreign objects may result in dangerous voltage or electric chock.

3.6 **DO NOT** place unit near hot air ducts or other heat sources.

3.7 **DO NOT** use this unit other than for its intended purpose. Doing so might lead to electric shock, injury, or damage to the equipment.

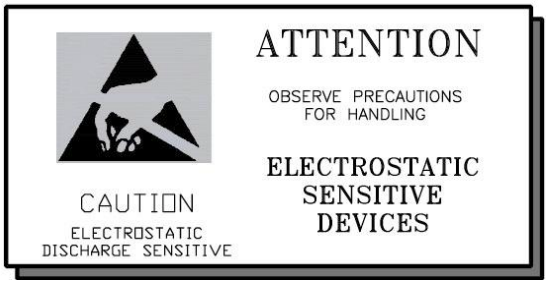
3.8 **DO NOT** use near water, moisture, or volatile sprays. Do not use any type of solvent when cleaning the unit; surface damage may occur.

3.9 **DO NOT** leave cassette tapes loaded in the unit with no power applied.

3.10 **NO** scheduled maintenance is required to ensure airworthiness.

3.11 Screw depth should **NOT** exceed 0.25" on front holes.

3.12 **ESD** (Electro Static Discharge) guidelines shall be followed.



4.0 Wiring Requirements

4.1 Introduction

The installing agency shall supply and fabricate all external cables. The length and routing of external cables should be carefully studied and planned before attempting installation of the equipment. Allow adequate space for installation of cable and connectors. Avoid sharp bends and placing cables near aircraft control cables. Maintain a minimum clearance of three (3) inches from any control cable. If wiring is run parallel to combustible fluid or oxygen lines, maintain a minimum separation of six (6) inches between the lines.

4.2 Power Wires

All power and ground wires shall be 22 AWG, MINIMUM shielded twisted pair with the shield properly bonded at one end only. Power ground wires shall be bonded to electrically conductive chassis mounting point with <1 Ω resistance or <50 Ω impedance. Twisted shielded cable shall be in accordance with **NEMA WC 27500** or equivalent.

4.3 Audio Wires

All audio connections require twisted, shielded cable with the cable shields properly grounded at the source. Twisted shielded cable shall be in accordance with **NEMA WC 27500** or equivalent.

4.4 Video Wires

Composite video connections shall be shielded coaxial cable in accordance with **M17/94-RG179** or equivalent.

4.5 AI's Proprietary RS-485 Data Bus

4.5.1 The VCP-010-06(-07)-x is designed to interface with other Audio International equipment via AI's proprietary RS-485 serial data bus. The data bus shall be implemented using a twisted shielded pair cable in accordance with **NEMA WC 27500** or equivalent. The wire size for the conductors in this cable shall be 22 AWG, MINIMUM. The shield shall be connected as required. Shield terminations shall be made as close to the connector pin as possible.

4.5.2 All modules on AI's proprietary RS-485 data bus shall be connected in a 'daisy-chain' configuration. AI's proprietary RS-485 data bus specification is available upon request.

5.0 Physical Characteristics

5.1 Refer to Section I, 5.0 for unit dimensions and Section II, 9.0 for attachment points.

5.2 When mounting the unit, allow sufficient space for mating connectors.

5.3 **DO NOT** insert any screw more than 0.25" into the case. Mounting holes on the unit provide multiple anchoring points. These threaded inserts do not have physical stops. Care should be taken not to penetrate the outer casing more than 0.25" with any screw. This could result in serious damage to the video cassette player.

6.0 Electrical Characteristics

6.1 Electrical Specifications:

Electrical	Power	1A @ +28 VDC
	Operating Voltage Range	+18 to +32 VDC
	Data Bus Type	AI Proprietary RS-485
	Audio Frequency Response	200 Hz to 8 kHz
	Audio S/N	>37 dB (NOMINAL)
	Video Output	1 $V_{(p-p)}$ into 75 Ω
	Playback Format	PAL & NTSC (auto detect)
	Video Output	NTSC, PAL (selectable)
	Video Heads	4
	Infrared Signal Input	+5 VDC digital logic level

6.2 The VCP-010-06(-07)-x utilizes one (1) 15-pin connector for electrical connections. This connector provides power, left/right audio output, data bus control, infrared input, and four (4) infrared strapping pins for alternate configuration of infrared digital command codes. Utilizing these infrared inputs, the VCP-010-06(-07)-x can be configured to accept up to four (4) different sets of infrared codes or eight (8) separate RS-485 addresses. This allows up to four (4) of the same devices when using infrared inputs or eight (8) of the same devices when using the RS-485 data bus to be used in the same system while maintaining independent control. Three (3) strap pins are available to configure the infrared codes and RS-485 addressing. Standard configuration requires no strap pins to be connected. To change the code settings, connect one (1) of the strap pins to the strap common.

6.3 Mating Connector Information

Model #	Mating Connector
VCP-010-06(-07)-1	RD15F10JVL0
VCP-010-06(-07)-2	DAMA-15S D20418-2 Female Screwlock
BNC1 Video Output	AMPHENOL 31-7008 or equivalent

6.4 Pinout Assignment and Descriptions

Pin Configuration VCP-010-06(-07)-x	
Pin #	**Description**
1	+ 28 VDC, Power Input
2	Ground
3	R+ Audio Output
4	R- Audio Output
5	L+ Audio Output
6	L- Audio Output
7	Data Bus (A)
8	Data Bus (B)
9	Infrared Input +
10	Infrared Input -
11	IR Strap 2
12	IR Strap 3
13	IR Strap 4
14	IR Strap Common
15	Reserved

7.0 Post-Installation Test

7.1 Verify +28 VDC power has been connected to the unit. The audio signal output of the unit is generally connected to cabin speaker systems in addition to headphone locations. Verify all connections before supplying power to the unit.

7.2 Load the VCP-010-06(-07)-x with a videocassette tape. Use the front panel controls or the hand-held remote control unit to select PLAY. Check for a picture on the appropriate monitor. Verify that the audio can be heard through the speaker and/or the headphone system.

7.3 Use the front panel controls (and the hand-held remote, if applicable) to each of the functions; ensure that the unit rewinds, fast-forwards, stops, pauses, and ejects as appropriate. See Section III, subsection 3.0 for detailed descriptions of the units' controls.

8.0 Troubleshooting

8.1 General Troubleshooting Procedures

- Check that +28 VDC power is applied to the proper pins on the unit. Use a voltmeter to verify correct level.
- Reset the unit by removing power from it for at least one (1) minute and then reapply power.
- Make certain that the video cassette is clean. If dirty cassettes are used, it may become necessary to clean the unit with a commercial Video Head Cleaner.
- Recheck all connections to the unit for security. Check all harness runs for possible pinching. Recheck all pinouts for application accuracy.
- RS-485 data bus is a bi-directional bus without a "bus controller." The bus uses a differential digital signal that transmits only when commands are entered via switch selection or other system synchronizing commands. The "A" leg of the bus is HI and the "B" leg LOW.
- If the picture is unclear, too dark, or too light, press the FORMAT button located on the VCP front panel to change video formats.
- To check data bus integrity, utilizing a voltmeter, oscilloscope, or other voltage instrument, verify proper input voltage on the data bus pins. Typical measurements verifying proper conditions are:

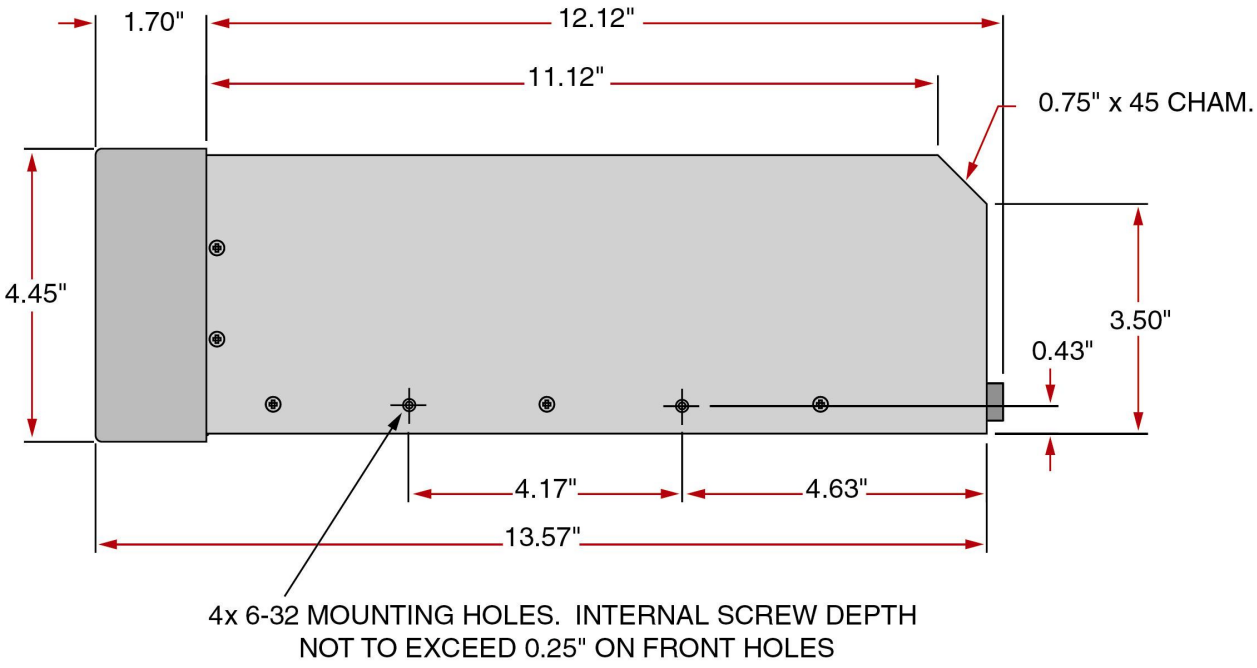
A to Ground : 4.0 to 4.5 VDC
B to Ground : 0.1 to 0.2 VDC

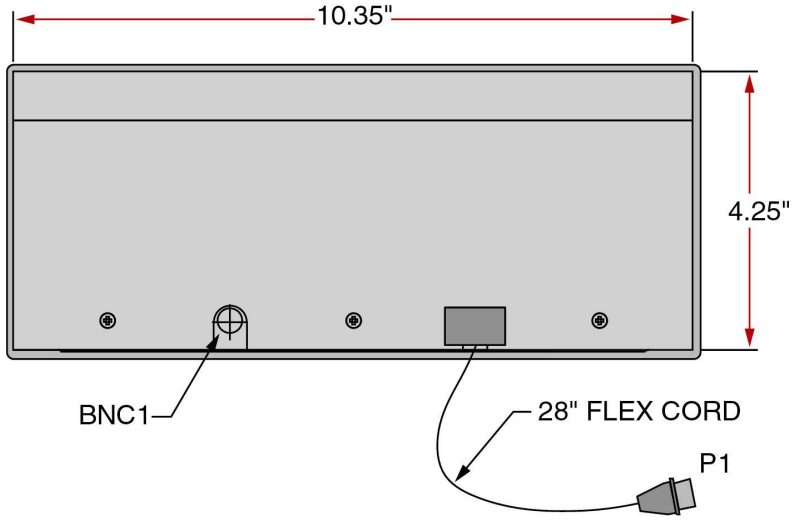
8.2 Troubleshooting Chart

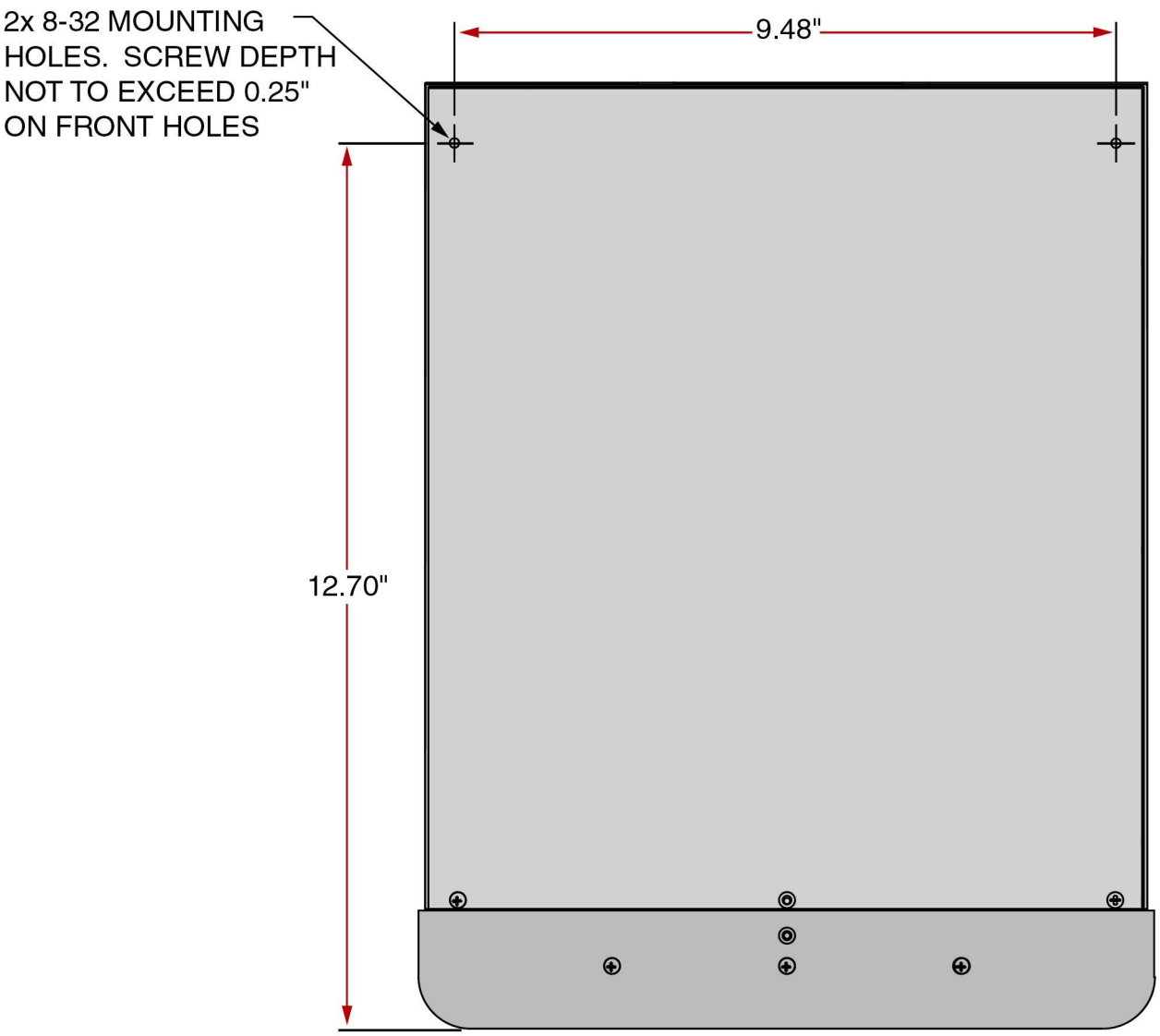
Problem	Possible Cause	Solution
No power	➢ Faulty wiring	• Verify +28 VDC power and audio/video input is present and recheck connections
	➢ Circuit breaker not 'ON'	• Turn circuit breaker to 'ON' position
Unclear picture	➢ Video heads may be dirty	• Use a commercial head cleaner • Replace videocassette tape
	➢ Incorrect Format	• Change Format
Video not present	➢ Cassette not loaded	• Load videocassette
	➢ Tape defective	• Replace videocassette tape
	➢ Video connector not operational	• Reconnect or repair cable
Audio not present	➢ Defective videocassette tape	• Replace videocassette
	➢ Power/Audio connector not operational	• Reconnect or repair cable
Buttons not operating	➢ Moisture may have condensed inside the unit	• Allow unit to warm to room temperature and moisture to evaporate
Tape cannot be inserted	➢ Foreign object in tape slot	• Remove foreign object
Unit does not eject	➢ EJECT button not functioning	• Verify +28 VDC power and check connections

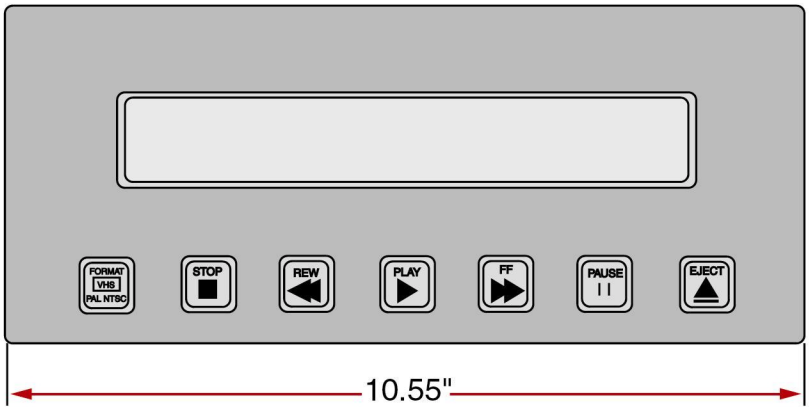
9.0 Reference Drawings

9.1 The following diagrams show the unit dimensions, mounting locations, and connector locations for the VCP-010-06-x.

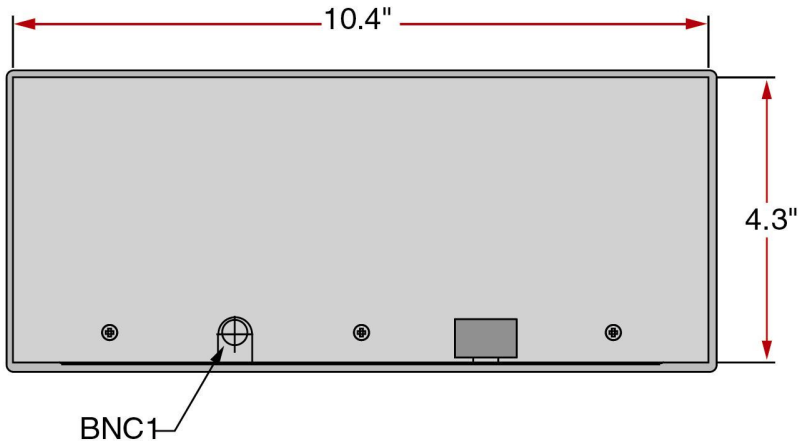


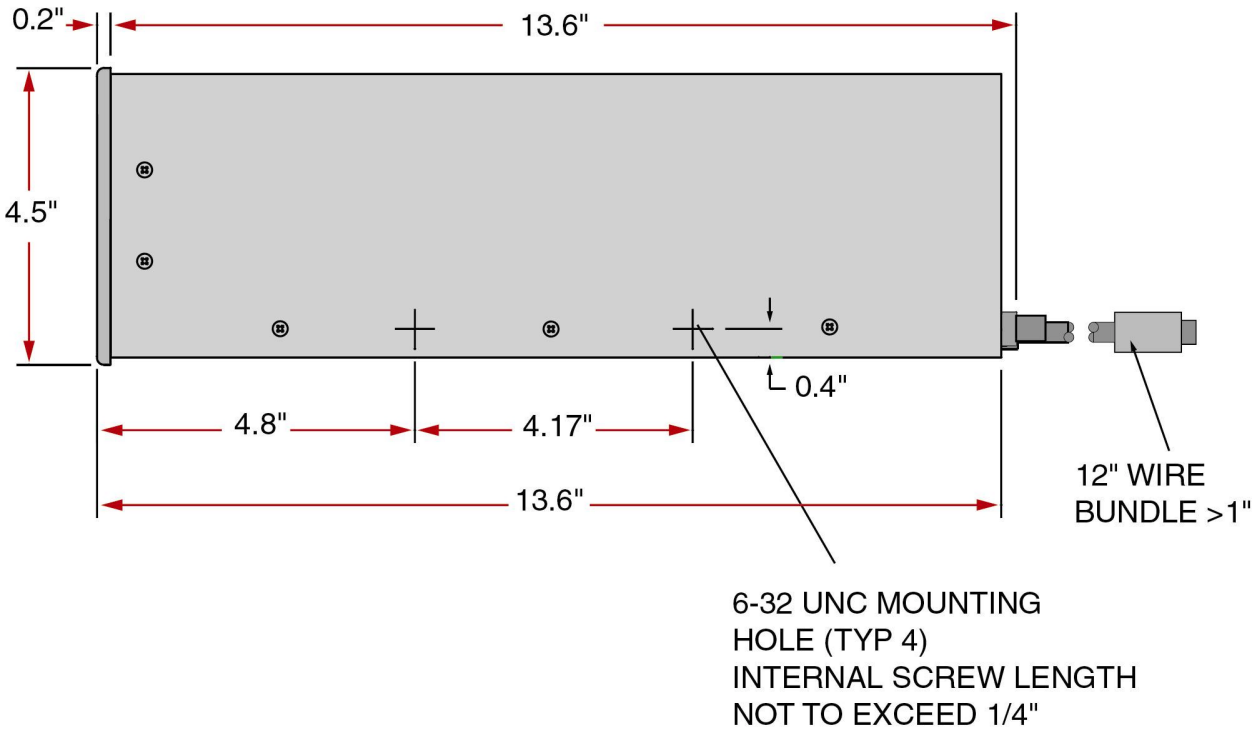


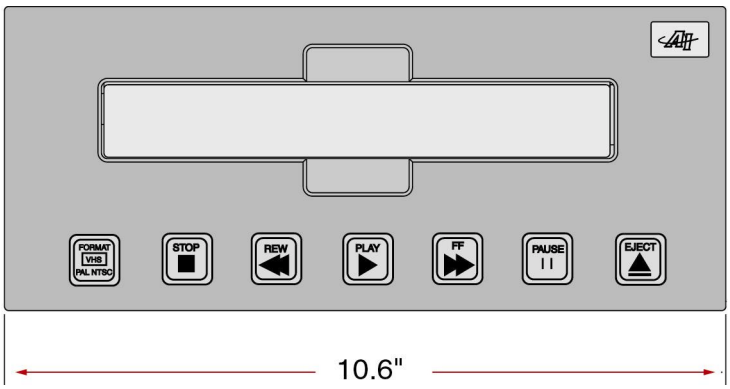

2x 8-32 MOUNTING
HOLES. SCREW DEPTH
NOT TO EXCEED 0.25"
ON FRONT HOLES
9.48"
12.70"

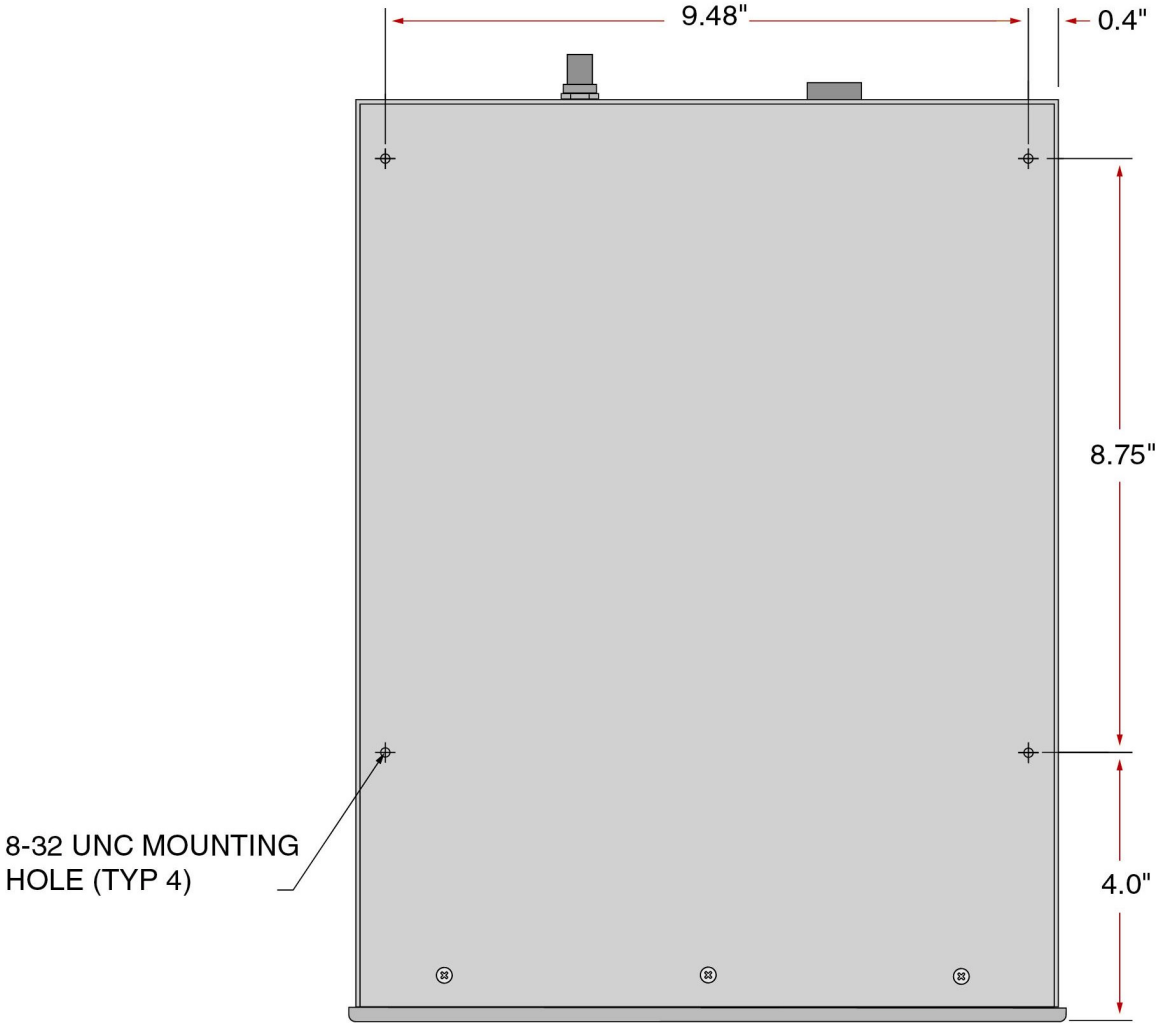

FORMAT
VHS
PAL NTSC
STOP
REW
PLAY
FF
PAUSE
EJECT
10.55"

9.2 The following diagrams show the unit dimensions, mounting locations, and connector locations for the VCP-010-07-x.






FORMAT
VHS
PAL NTSC
STOP
REW
PLAY
FF
PAUSE
EJECT
10.6"


9.48"
0.4"
8.75"
4.0"
8-32 UNC MOUNTING
HOLE (TYP 4)

SECTION III – OPERATION

1.0 General Information

1.1 The VCP-010-06(-07)-x can be operated via front panel 'buttons' or optionally controlled by infrared remote or AI's touch screen panel. Digital codes allow the unit to interface with an infrared handheld remote via an infrared receiver, IFR-9A or IFR-485.

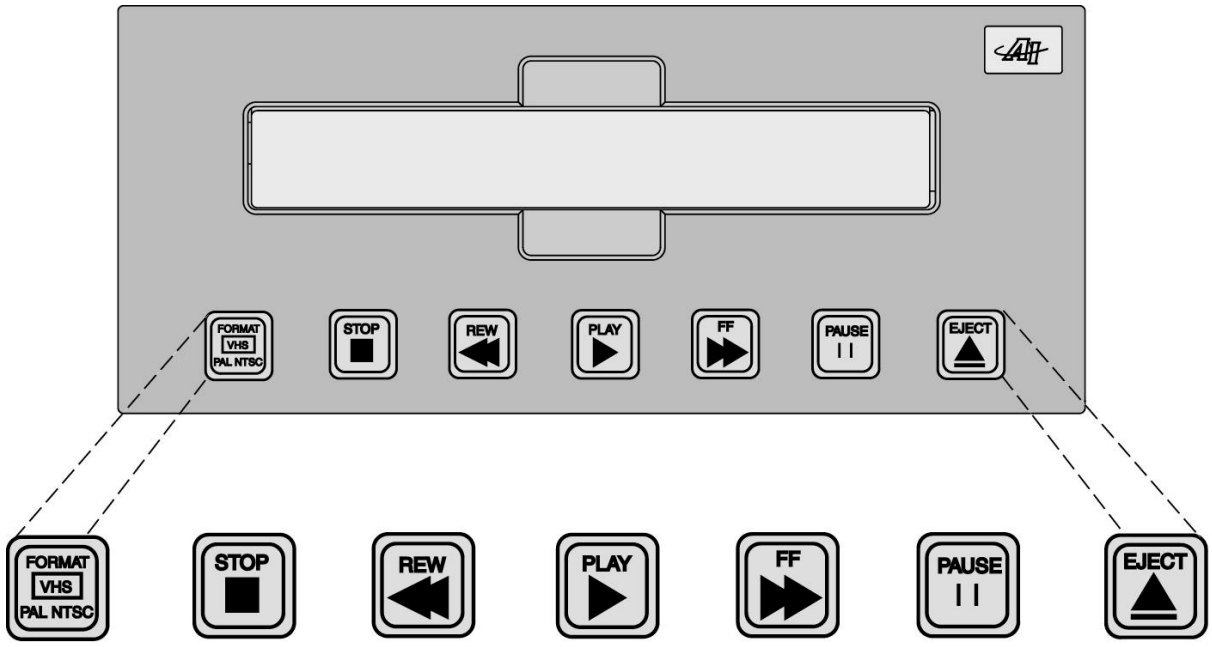
1.2 Utilizing the infrared inputs, the VCP-010-06(-07)-x can be configured to accept up to four (4) different sets of infrared codes or eight (8) separate RS-485 addresses. This allows up to four (4) of the same devices when using infrared inputs or eight (8) of the same devices when using the RS-485 data bus to be used in the same system while maintaining independent control. Three (3) strap pins are available to configure the infrared codes and RS-485 addressing. Standard configuration requires no strap pins to be connected. To change the code settings, connect one (1) of the strap pins to the strap common.

1.3 Playback options with front 'button' controls, remote, or touch screen controls include stop, eject, fast-forward, rewind, and pause.

1.4 When the VCP-010-06(-07)-x reaches the end of the videocassette, the unit will automatically enter rewind mode. As a safety precaution, the VCP-010-06(-07)-x has been designed so that it will not automatically eject when the tape has been fully rewound. The EJECT button on the front panel must be pressed to unload the videocassette tape.

ILLUSTRATION OF FRONT PANEL BUTTONS

(Note that the VCP-010-07-x cover bezel is used for reference only; the button configuration is the same on all VCP-010-06(-07)-x models)



2.0 To Load a Videocassette Tape into the Tape Slot

2.1 Gently insert a videocassette tape into the cassette tape slot. Apply *slight* forward pressure to the side edge of the tape. The VCP-010-06(-07)-x will gently 'pull' the tape into the player. Playback begins playing automatically when the videocassette is inserted into the slot.

2.2 If the videocassette is inserted incorrectly, the loading system will not function. Do not force the tape into the unit. See section 8.2, Troubleshooting, if difficulties arise in getting the VCP to accept a videocassette.

3.0 Front Panel Button Functions

3.1

Format Button – Press the FORMAT button to switch between PAL and NTSC output modes.

3.2

Stop Button – Press the STOP button to stop videocassette tape playback.

3.3

Rewind Button – While the tape is playing, press the REW button and the tape will reverse direction until the STOP or PLAY button is pressed. This allows for a visual search through the preceding scenes on the videocassette. Audio will not be present during this "reverse search" mode. Pressing the REW again during reverse search will accelerate the process. To rewind the videocassette, press the STOP button and then press the REW button. (The picture cannot be viewed in this mode.) Press the STOP button at any time during rewind to stop the REW function. Press PLAY to resume playback of the videocassette tape.

3.4

Play Button – Press the PLAY button to begin videocassette tape viewing. Pressing PLAY twice in succession activates double-speed play.

3.5

Fast Forward Button – While the tape is playing, press the FF button and the tape will fast-forward search until the STOP or PLAY button is pressed. Audio will not be present during this search mode. Pressing the FF button again will accelerate the fast-forwarding process. For maximum fast-forward, press the STOP button and then press the FF button. (The picture cannot be viewed in this mode.) Press the STOP button at any time during fast-forward to stop the FF function. Press PLAY to resume playback of the videocassette tape.

3.6

Pause Button – Press the PAUSE button during playback to temporarily stop the playback of the videocassette tape. Video will remain visible. Pressing PAUSE again will advance the movie one frame forward. To return to normal viewing, press the PLAY button.

3.7

Eject Button – Press the EJECT button at any time to eject a videocassette from the unit. The tape will stop and eject regardless of current function.